

# In vitro co-culture and 3D matrigel/collagen culture assays

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An abbreviated version of this protocol was published in Nature Communications in Sep 2020

Collagen promotes anti-PD-1/PD-L1 resistance in cancer through LAIR1-dependent CD8+ T cell exhaustion

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## Related files



3D Matrigel\_Collagen In Vitro Co-culture Assay Protocol.docx



**How to cite:** (Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used)

1. Gibbons, D. L.(2021). In vitro co-culture and 3D matrigel/collagen culture assays. Bio-protocol Preprint. [bio-protocol.org/prep1162](https://bio-protocol.org/prep1162).
2. Peng, D. H., Rodriguez, B. L., Diao, L., Chen, L., Wang, J., Byers, L. A., Wei, Y., Chapman, H. A., Yamauchi, M., Behrens, C., Raso, G., Soto, L. M. S., Cuentes, E. R. P., Wistuba, I. I., Kurie, J. M. and Gibbons, D. L.(2020). Collagen promotes anti-PD-1/PD-L1 resistance in cancer through LAIR1-dependent CD8+ T cell exhaustion. Nature Communications 11. DOI: [10.1038/s41467-020-18298-8](https://doi.org/10.1038/s41467-020-18298-8)

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